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The Opioid Epidemic: A Practice and Policy Perspective

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Policy Brief

The Opioid Epidemic: A Practice
and Policy Perspective

Gail D'Onofrio

No. 52/2017

Dr. Gail D'Onofrio is internationally known for her work as an independent investigator in drug and alcohol research. She is a recognized leader in Emergency Medicine and Addiction Medicine, and has participated in many National Institute of Health (NIH) panels and on review committees, including the National Institute on Drug Abuse (NIDA), the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Heart, Lung and Blood Institute (NHLBI). D'Onofrio's research and publications have appeared in high impact journals, including the *New England Journal of Medicine*, *Journal of the American Medical Association*, *Annals of Emergency Medicine*, *Resuscitation*, and *Addiction*.

The Herbert Lourie Memorial Lecture on Health Policy, sponsored by the Maxwell School of Citizenship and Public Affairs of Syracuse University and the Central New York Community Foundation, Inc., honors the memory of Herbert Lourie, MD, a distinguished Syracuse neurosurgeon, professor, and community leader for nearly 30 years. Generous contributions from his family, friends and colleagues, and former patients have endowed this series.

The Policy Brief series is a collection of essays on current public policy issues in aging; urban and regional studies; education finance and accountability; public finance; social welfare, poverty, and income security; and related research done by or on behalf of the Center for Policy Research (CPR) at the Maxwell School of Syracuse University.

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Policy Brief

The Opioid Epidemic: A Practice and Policy Perspective

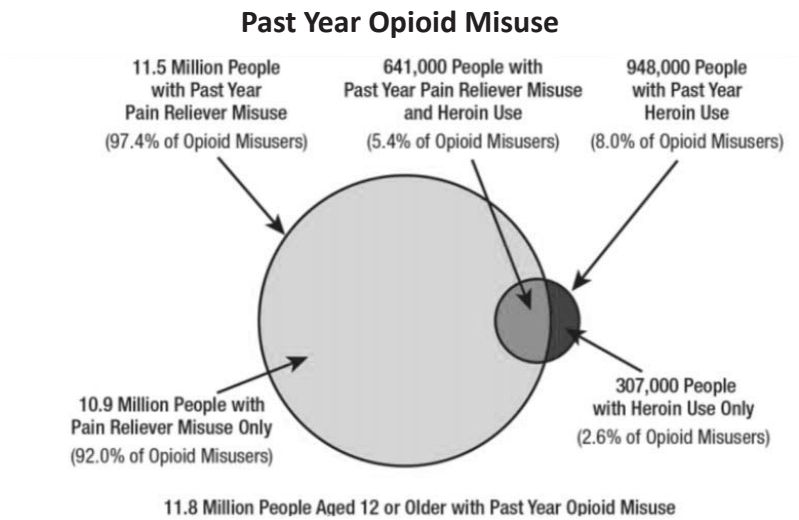
Gail D'Onofrio

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The Opioid Epidemic: A Practice and Policy Perspective

Introduction

Today I will be talking about the escalating opioid epidemic and some innovative solutions my colleagues and I at Yale University and throughout the state of Connecticut, are working on to mitigate the consequences of this public health crisis. According to the recent data released from *The National Survey on Drug Use and Health*, 20.1 million Americans age 12 and over reported having a substance use disorder; two million specifically related to opioid use disorders in 2016. A total of 11.8 million people aged 12 or older reported a past year opioid misuse. Of these, 8% used heroin and 92% reported pain reliever misuse only.

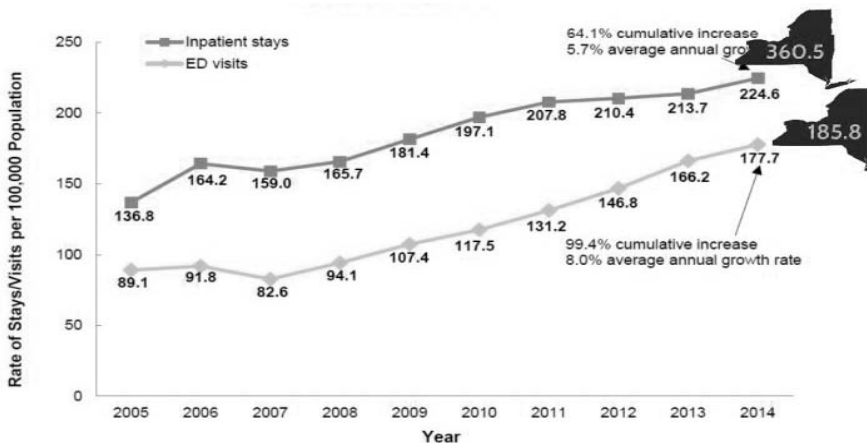


Source: NSDUH, 2016

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Overdose rates and deaths have risen sharply in the past few years. Data from the Healthcare Costs and Utilization Project (HCUP) supported from the Agency for Healthcare Research and Quality (AHRQ) demonstrate that the national rate of emergency department (ED) visits and inpatient stays for opioid use is going up every year. Below are data derived from 30 participating states depicting this escalation, with the State of New York exceeding the national rates.

National Rate per 100,000 Population of Opioid Related ED Visits 2005-2014

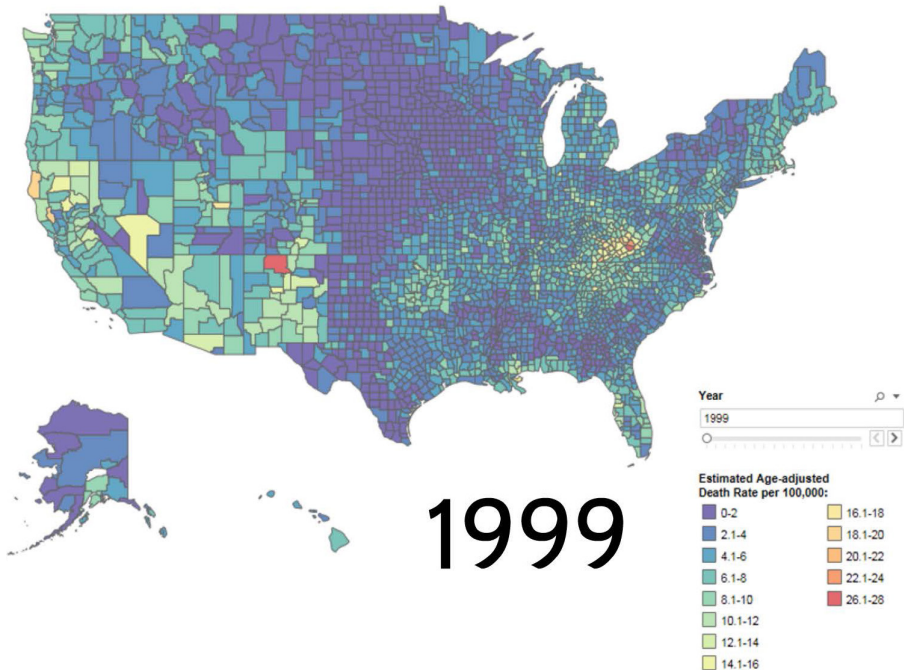


Abbreviation: ED, emergency department

Source: Weiss et al., 2006

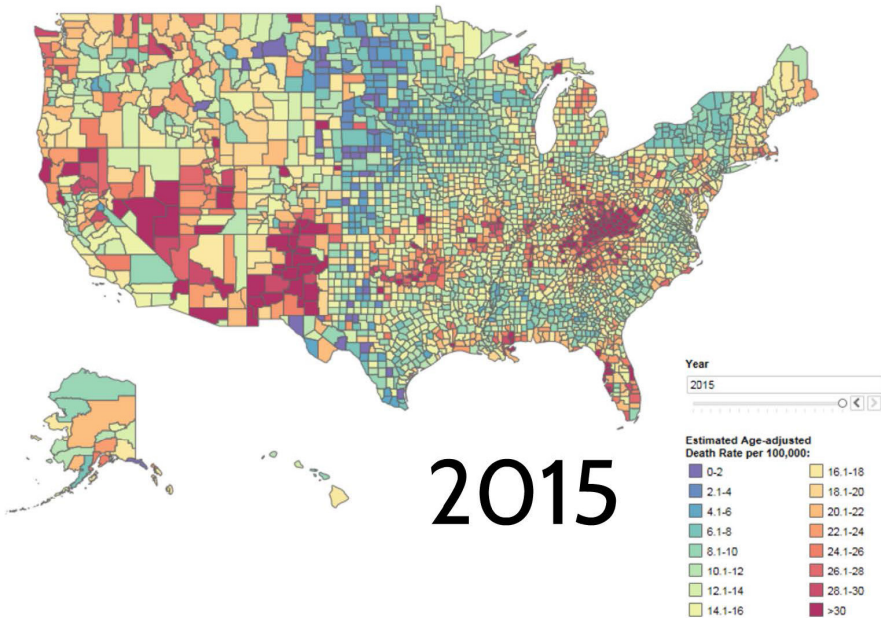
I expect that the numbers will be much higher when new data comes out.

The following maps are very telling. They depict the rate of overdose deaths in the entire United States in 1999 compared to 2015. In 1999, the hot spots, or areas representing 26-28 deaths per 100,000 individuals, were limited to Appalachian Valley and a small county in New Mexico.



Source: CDC/NCHS, National Vital Statistics System. Designed by L. Rossen, B. Bastain & Y Chong

Fast forward to 2015, and the signs are more ominous. The number of overdose deaths increase nationwide with large hot spots in New England, Ohio and the Appalachian Valley and the southwest. People are literally dying every day, often in their youth.



Source: CDC/NCHS, National Vital Statistics System. Designed by L. Rossen, B. Bastain & Y Chong








The Faces of Addiction

What do the faces of addiction look like? In 2016, David Armstrong, a senior enterprise reporter at *STAT*, owned by the *Boston Globe*, published an article entitled “52 weeks, 52 faces: Obituaries narrate lives lost to the opioid epidemic.” (Armstrong, 2016). To write this story, Armstrong searched Legacy.com and other sources to find obituaries of people who died after a struggle with opioid addiction. One may note that this sample may be biased as the information is derived from written obituaries, which may say something about the families’ resources and education. However, it does reflect that opioid addiction is prevalent in white populations. These stories are very compelling, and most everyone can identify or connect with an entry. We have a 27-year-old fitness buff from

Norwich, Connecticut; a 32-year-old father of two from Cleveland, Ohio; a 27-year-old, who was one of nine children, from Tolland, Connecticut; a 52-year-old grandmother from Mansfield, Ohio; and so on. What this shows you is that these are people within communities, people that you could know, and people whose lives were shortened unnecessarily.

Obituaries narrate lives lost to the opioid epidemic

By DAVID ARMSTRONG @DavidArmstrongK / DECEMBER 20, 2016

 <p>Michael T. Brandon (Feb. 21) 27 years old Fitness buff Norwich, Connecticut</p>	 <p>Alex Thomas Zimmer (July 23) 27 years old One of nine children Tolland, Connecticut</p>
 <p>Cassidy Aspen Cochran (Nov. 11) 24 years old Engaged Homewood, Alabama</p>	 <p>James R. Gimenez (Sept. 16) 32 years old Father of two Cleveland, Ohio</p>
 <p>Jesse M. McCauley (Nov. 6) 24 years old One of three brothers to die of an overdose Rockland, Massachusetts</p>	
 <p>Johnnie Rae Criss (July 20) 52 years old Grandmother Mansfield, Ohio</p>	
 <p>Emily Marie Harrison Roznowski (Dec. 3) 22 years old Mother Camp Hill, Pennsylvania</p>	

THE FACES OF ADDICTION

Source: Armstrong, 2016

Words Matter

One of the themes that I will repeatedly emphasize is that **words matter**. If you remember nothing else today, please remember that we can all help combat this public health crisis if we use accurate, less stigmatizing words when talking about addiction. When individuals feel stigmatized, they are less likely to seek treatment. They feel ashamed, and this presents an unnecessary barrier to care.

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Instead of calling a person with an addiction an “addict,” we can use words such as a person with an “opioid use disorder, or addiction.” Thus, the person is not defined as his or her disease. We do not refer to individuals with diabetes as that “diabetic over there.” We are trying very hard to educate journalists and the public to talk about addiction as a disease. Even though many patients call themselves addicts, we try as physicians to say, “You may call yourself an addict, but I’m not going to refer to you like that. You have an opioid use disorder, and I am going to help you treat that.”

Using **accurate** words also matters. Often the media is not accurate. For example, I recently read a post from a *New York Times* article that calls a “typical overdose” when a doctor prescribes legally, but someone other than intended digests the pills. While this was an important past issue, currently the typical overdose is caused from the use of heroin or synthetic opioids such as fentanyl. Similarly, news articles have spoken about the “addicted baby.” This is impossible, as a baby does not display behaviors such as going out of their way to seek opioids despite known consequences, spending all their time seeking opioids and impairing relationships, etc. Accurately stated, we have babies that suffer from opioid abstinence syndrome. Recently, my colleagues and I at Yale have been working with journalists and the news media to make sure that the information they’re putting out there is accurate and less stigmatizing.

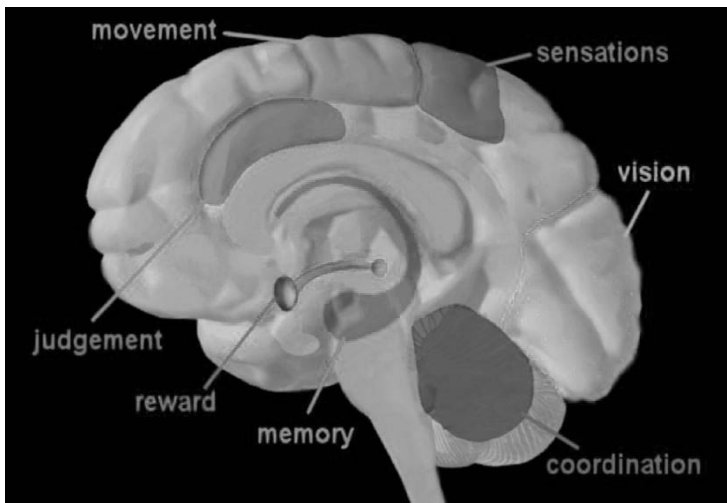
What is Addiction?

Addiction is a Disease

Addiction is not a moral failing, it is a chronic relapsing disease. Robert DuPont, who was the first director of the National Institute on Drug Abuse (NIDA), once told a story that I found very compelling. He describes a scenario imagining that you are driving a car in a residential zone at a fast speed and a child runs in front of you.

You know you need to stop or you're going to seriously hurt, if not kill, that child. You try desperately to stop, but you can't, the brakes don't work. You cannot will the breaks to work, just as one cannot will themselves out of this disease. Similarly, one cannot will themselves out of diabetes, cancer, or heart disease.

Addiction has potential genetic, environmental, and behavioral components. There are profound neurobiological changes that occur when transitioning from opioid use to an opioid use disorder. The brain is comprised of many areas and neuro circuits that you see below.



Source: NIDA, 2007

Addiction is thought to, in some way, “hijack” the reward system, which is mediated through dopamine as a neurotransmitter. Our reward system is very powerful. It is important for our individual survival; we need to eat and drink as well to procreate and survive as a species. When an individual uses heroin they experience an overwhelming pleasurable response. At some point the reward

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system overpowers the individual's ability to resist that feeling. Heroin also affects the prefrontal cortex, which controls our judgement. Thus, one will seek to use the drug no matter what the consequences. Why this happens in some individuals and not others, and why some individuals can use a drug without crossing over to an addiction is not entirely known.

Chronic Pain vs. Experimental Use (Noble, et al., 2010; Shaheed, et al., 2016)

It is important to understand the intersection between chronic pain, opioid use disorder, and experimental use. Both chronic pain and experimental use can lead to opioid use disorder, but there are big differences between these groups. Chronic pain affects over 100 million people, or one in three individuals. Twenty-five million Americans suffer from daily pain, and 40 million from very severe chronic pain, with costs over \$600 billion every year attributable to treatment costs, lost wages, and productivity. Thus, we need to find alternative ways to deal with pain, other than opioids. While individuals may become physically dependent on opioids for pain, such as someone with end stage cancer, there is a distinction with developing an addiction. This criteria for addiction entails continuing to use despite negative consequences, devoting an enormous amount of time and energy to obtaining the drug, and its interference with work and personal relationships. In addition, there are individuals who use these drugs experimentally at parties etc. Some of these people will use, live through it, and never develop an addiction. But some individuals will have their reward system so activated that they will develop an opioid use disorder.

What is an addiction to opioids or an opioid use disorder? The Diagnostic and Statistical Manual (DSM-5) (American Psychiatric Association, 2013) for opioid use disorder consists of 11 questions. Depending on how many questions are positive, one can have a

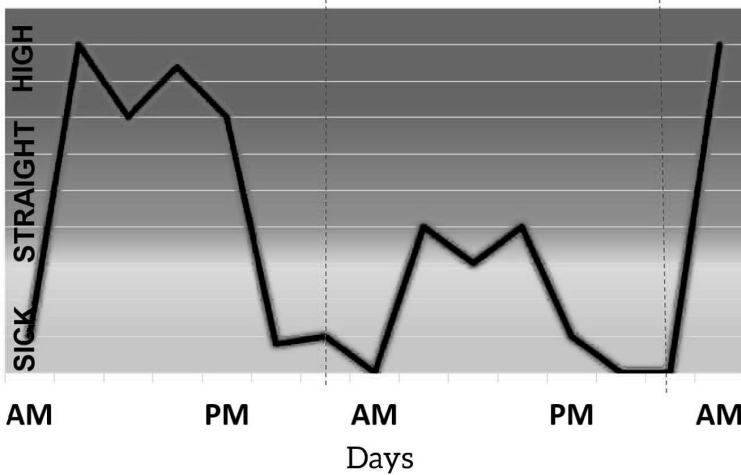
diagnosis of a mild, moderate, or severe opioid use disorder. The most prominent component of the disorder is this first thing on DSM's list – taking opioids in really large amounts and for longer than intended. It is also when you are doing something you cannot stop, no matter what you try to do, you can't stop taking it. You could lose your family, you could lose your job, you could lose everyone that was significant to you, but it really wouldn't matter. You're still going to use more of it. And you will stop doing other things that you used to do because you've spent all your time thinking about when you're going to get your next drug. That is addiction.

What addiction is not. The development of tolerance and the need for more medication to get the desired effect. For example, with sickle-cell disease, one will develop a tolerance and need more and more medication for pain relief through disease progression and repeated pain crises. In addition, as their body becomes physically dependent on the medication, they will experience withdrawal symptoms with abrupt cessation of their medication. This can also happen to individuals who have progressive cancer. This doesn't mean that they have an addiction, because they're being treated by physicians who are prescribing the medications as needed.

What Does it Feel Like to Have an Opioid Use Disorder?

Contrary to what one may think, individuals with severe opioid use disorders are not high all day. They may get some relief from use, but then they experience large fluctuations from experiencing cravings and dysphoria, to some relief. While initially they may experience euphoria, with chronic use the euphoria becomes less and less and it becomes just a feeling of relief.

What does it Feel like to have Opioid Use Disorder?



Source: Dole, Nyswander, and Krock, 1966

Their life is consumed with not feeling poorly and avoidance of the horrific withdrawal symptoms. Thus, they are constantly looking for their next drug. Withdrawal causes irritability, restlessness, nausea, abdominal pains, and achiness, perhaps the worst flu symptoms you can imagine.

Fentanyl and Overdoses

Many overdose deaths are now from synthetic opioids such as fentanyl. The question is, why is so much fentanyl reaching the market? One answer is that fentanyl is purely synthetic, meaning it is manufactured in a laboratory. It is relatively easy to make and it is cheap. Additionally, a lot of fentanyl is brought in from China, Central America, and South America. So, you can sell fentanyl for almost the same price as heroin, but since it's cheaper to make, you make ten times or twenty times more money. This is scary. We are seeing so much in circulation and it is so powerful that it can kill an individual the first time they try it. People may not even know that what they buy or use is fentanyl. They may think they

are using cocaine or heroin, but actually they are using something that's much more powerful. In New Haven, Connecticut we had an unfortunate experience with 18 overdoses detected in a few hours that resulted in multiple deaths. These individuals were snorting a white powder they thought was cocaine, but in reality, it was fentanyl (Tomassoni et al., 2017). In addition, counterfeit pills are in circulation and available from the internet that look like an opioid such as Oxycodone or Percocet, when in fact they are fentanyl. Most likely the general public will not be able to distinguish between a real and a counterfeit pill.

The overdose data is always behind, as the CDC reports annually on the previous year. Unfortunately, we suspect that the 2016 data will reveal at least 65,000 overdose deaths, and it is estimated to be around 100,000 in a few years if we continue on the same pace.



Source: Katz, 2017

The Impact of Opioids on Certain Populations

Adolescents are misusing opioids more than they did before. Adolescent overdose rates have gone up from 1.6 to 3.7 per 100,000 (Curtin et al., 2017). This tells us that that it is important to start young with prevention.

Women are particularly affected by opioid misuse as well. Women become dependent more quickly and use it differently. They tend to take smaller amounts for shorter periods of time, which usually makes you more dependent. Women are also more sensitive to cravings.

Older people are also misusing opioids and that, in combination with chronic diseases, other medications, and co-prescribing, makes it more difficult to stop overdoses. According to the 2014 NSDUH, opioid use among adults 50 and older has increased from 1% to 2%. One reason may be that while new cancer therapies are helping many live longer, these individuals are often prescribed opioids to manage pain. Now, the palliative care team are asking for help because their patients are living longer than they thought and are now physically dependent on this medicine.

What Led to this Crisis?

The First Epidemic

We have known about opium since Hippocrates in 400 BC. In 1803 a German pharmacist extracted morphine from opium and called it Morpheus for the Greek god of dreams. It was right around this time that we began to have our first epidemic. At the time, it was considered one of the most useful drugs in the world and in the physician's arsenal. However, it apparently tasted very badly and was associated with many gastrointestinal symptoms. The development of the hypodermic needle in 1853 allowed for immediate use in acute pain without these negative side effects. The advent of the hypodermic needle and intravenous morphine

administration during the Crimean War and the U.S. Civil War, allowed for the immediate treatment of acute injuries on the battlefield; but unfortunately, 400-plus soldiers were left with what was termed “soldier’s disease,” which in reality was an opiate use disorder.

As the 1800’s continued, addiction became very widespread. In 1898, Bayer, well known for discovering aspirin, patented heroin as an improvement over morphine. The use of heroin was pharmaceutically driven and physicians and pharmacists used it for everything. Without any scientific knowledge or regulation, heroin was touted as the best thing for all ailments. People were given it for everything. Housewives, in particular, developed an addiction because they were given it often for menstrual cramps, anxiety, or headaches.

Eventually, the lack of regulation of heroin became evident and in the early 1900’s. Teddy Roosevelt, with the assistance of a physician from Ohio, established an opiate commission to begin to develop regulations. The opiate commission established the Harrison Narcotic Act, designating morphine a controlled substance. The Food and Drug Administration (FDA) proclaimed that manufacturers could no longer add opium and heroin indiscriminately to other substances and medications. After the Harrison Narcotic Act, regulations were established regarding indications for the use of opiates such as heroin and morphine and their distribution. Fortunately, at that time, there was not a large, lucrative, underground crime network complicating the expansion of nonprescribed opiates, thus the epidemic was contained with improved physician knowledge and the establishment of government regulation.

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The Second Epidemic

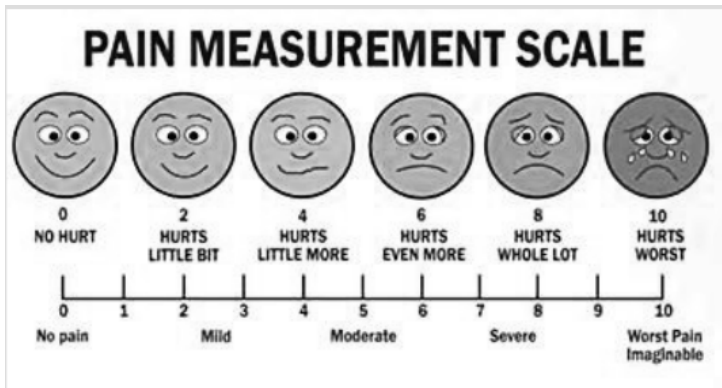
The second epidemic was not as big as the first, when opioids were widespread throughout the U.S., though equally pharmaceutically driven. In the 1950's Purdue Pharma was bought by two brothers who were physicians from New York, Raymond and Mortimer Sackler. With little data to support the use of OxyContin for pain, and its supposed lack of addictive potential, they developed and marketed the drug widely 1996. Pioneers of academic detailing, the brothers sent pharmaceutical representatives to doctors' offices and advertised extensively in an attempt to increase their sales with over 1 billion reported in 2000.

Another major cause of the second epidemic was a combination of many soldiers coming back from Vietnam and having widespread domestic proliferation of heroin on the black market. During this time, heroin injections became the leading cause of death in New York City. As a response, methadone clinics were introduced to treat heroin addiction, which were successful. In addition, in 1971, we started "the war on drugs", which we eventually learned did not work. Consequently, a lot of individuals with addictions were incarcerated, without treatment or prevention strategies in place.

The Current Epidemic

In the 1990's we recognized that pain was poorly treated. As resident physicians, we were told that we did not give out enough pain medicine, and we were scripted to say to patients in pain "I have more pain medicine than you have pain." In 1996 pain became the fifth vital sign. In addition to the original four primary vital signs that indicate the status of the body's vital functions including body temperature, heart rate, blood pressure, respiratory rate, we were required to ask about pain.

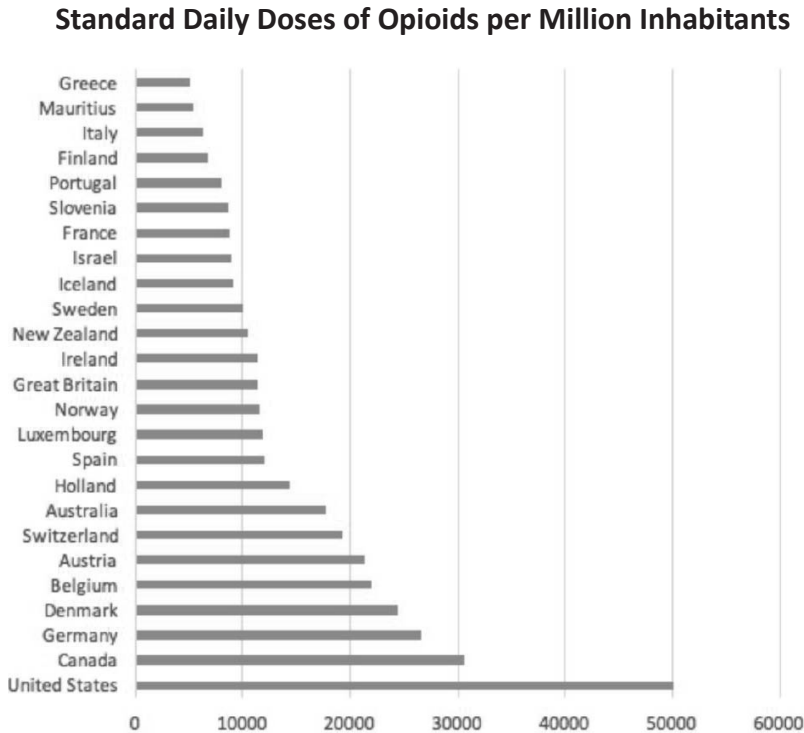
We would show patients the pain measurement scale below.



In 2001, the Joint Commission, a non-profit that accredits hospitals and other U.S. healthcare organizations, set pain management standards, and we were required to provide pain medicine for anyone that chose a four or more on this scale. But, as we all know, pain is very subjective.

We could start with ibuprofen or Tylenol, but if that didn't work, we were expected to give them something stronger. To make matters worse, the Centers for Medicare and Medicaid Services (CMS) linked our reimbursements with our patient satisfaction. Many emergency departments throughout the country pay their physicians based on their patient satisfaction scores. Consequently, many doctors started overprescribing pain pills to improve their scores.

The combination of all these events, pharmaceutical influence, pain guidelines, and patient satisfaction scores dictating "so called quality" and physician reimbursement created a perfect storm. Today, two out of three people in this country get a pain pill prescription every single year. Below, you can see the standard doses of opioids per million. Americans by far consume most of the opiates in the world and use 99% of the world's hydrocodone.



Source: United Nations International Narcotics Control Board, March 2017

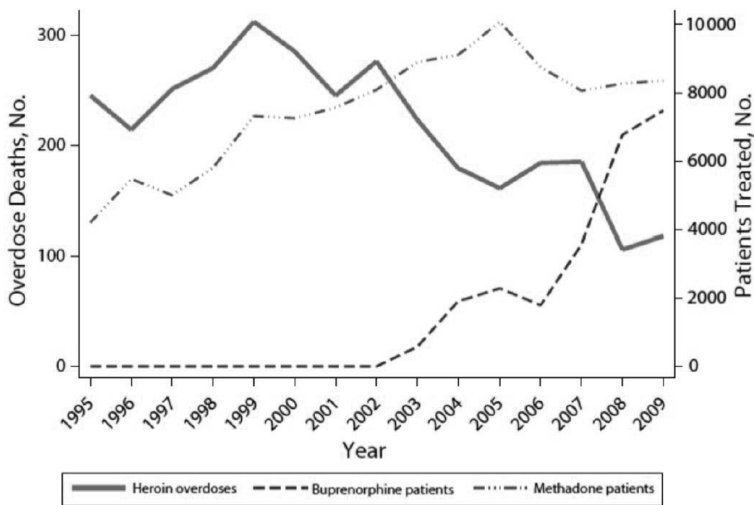
Opioid Agonist Treatment

An individual with an opioid use disorder (OUD) experiences severe swings during the day from acute dysphoria or withdrawal and non-dysphoric episodes. After use of opioids for long periods they no longer experience the “high” but fluctuate between these states. An opioid agonist, such as methadone and buprenorphine, can stabilize how an individual with OUD feels throughout the day, and allows one to function at home and work. Opioid agonist treatment is a very effective. We call it Medication-Assisted Treatment (MAT). Many believe this is an inaccurate statement and may contribute to more stigma. For example, we don’t call the treatment for diabetes,

i.e. insulin, medication assisted treatment. It is the treatment of diabetes. Thus, a more appropriate term may be medication for addiction treatment, which would preserve the acronym MAT.

We know that MAT works from multiple studies. Baltimore Maryland has had a huge problem with heroin overdose deaths. From 1995-2009, Baltimore expanded the use of buprenorphine and methadone as part of their opioid agonist treatment, and as you can see in the graph below, the number of deaths markedly decreased with the expansion of methadone treatment programs and the ability of physicians to prescribe buprenorphine in 2002.

Heroin OD Deaths during Expansion of Methadone & Buprenorphine in Baltimore, 1995-2009



Source: Schwartz, 2013

We have also seen examples of this happening in Sweden and France. Recently, in the *British Medical Journal*, a major analysis of multiple studies demonstrated that use of MAT prevents overdoses, compared to no MAT (Sordo, 2017).

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One question frequently asked regarding Opioid Agonist Treatment is whether patients need counseling in addition to medication. A large Cochrane review that was recently published included a systematic review of 34 randomized clinical trials with 3,777 patients receiving buprenorphine or methadone with basic versus additional structured counseling (Mattick et al., 2014). They concluded “the present evidence suggests that adding psychosocial support does not change the effectiveness of retention in treatment and opioid use during treatment.” It seems intuitive that, what I like to call “life coaching,” can be added because we do need these individuals to be an active part of our society, to work and be viable members of the community. Thus, education, obtaining GEDs, or making sure individuals have adequate housing is all necessary for maintaining recovery. And we know that often individuals with opioid use disorder have co-existing mental illness, and these conditions need to be adequately treated. But, an essential aspect of treatment is medication or MAT, specifically opioid agonist treatment.

Advantages of Opioid Agonist Treatment

Opioid Agonist Treatment reduces withdrawal symptoms, cravings and illicit drug use. It also reduces transmission of hepatitis, HIV, and complications from IV drug use such as skin infections and abscesses. It reduces overdose, death, and other risky behavior such as high risk sexual behavior without adequate protection. MAT also reduces legal consequences and crime. Finally, it allows individuals to sustain relationships and find meaningful employment. MAT also makes good economic sense. Every dollar spent on addiction treatment yields a return of \$4.00-\$7.00 in reduced drug-related activities such as crime, criminal justice costs, and theft. The total savings to healthcare exceed costs by a ratio of 12:1, from data reported in 2012.

Without adequate treatment, more people are going to die. 2015 was the first year in recent history that life expectancy in the U.S. fell, primarily in the white male population due to the surge in fatal opioid overdose deaths (Rudd et al., 2016). MAT is endorsed by almost every agency you can think of - the World Health Organization, the National Institute of Health (NIH), the National Governor's Association, the Surgeon General, the Office of National Drug Control Policy, and the Substance Abuse and Mental Health Services Administration (SAMHSA).

Limited Access to Opioid Agonist Treatment

In a special report in *The New England Journal of Medicine*, Dr. Nora Volkow, director of the National Institute on Drug Abuse (NIDA) and Dr. Francis Collins, director of National Institutes of Health, say "These medications coupled with psychosocial support are the current standard of care for reducing illicit opioid use, relapse risk, and overdoses, while improving social function. However, limited access to providers and programs can create barriers to treatment." (Volkow and Collins, 2017). Even with all this knowledge and evidence, only a third of drug treatment centers use MAT (SAMHSA TED, 2013 & Knudsen, Abraham, & Roman, 2011). This means that a lot of the time, patients come out of abstinence based rehabilitation programs and they end up dying. We know that release from any controlled abstinence environment, be it a drug program or incarceration, is a major risk factor for overdose and death. This results from the individual becoming less tolerant, and with relapse they overdose.

A study published last year in *The Journal of the American Medical Association* examined the medications provided before and after an opioid overdose event from 2008-2013 in the Pennsylvania Medicaid system. Unfortunately, very few of these people were

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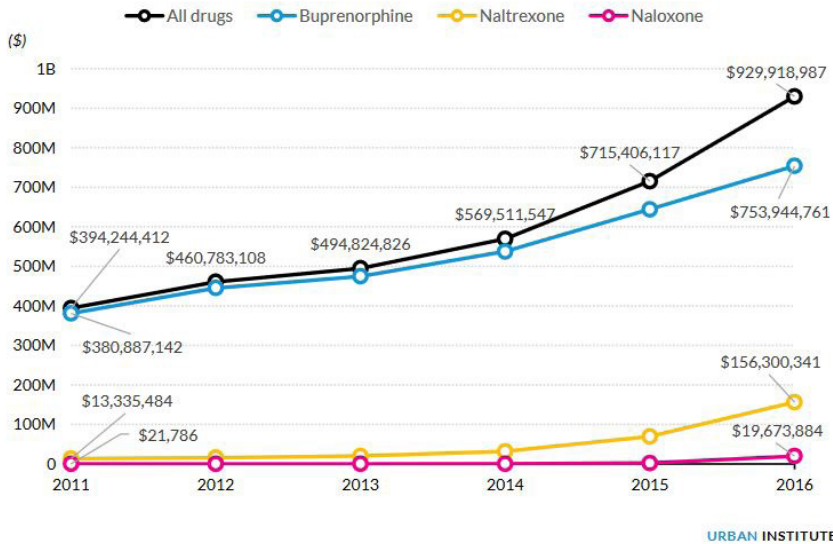
ever prescribed medication treatment for opioid use disorder after they overdosed. In addition, there was little reduction in the opioids they were prescribed! (Frazier, Winfred, et al., 2017).

Medication Patterns Before and After Heroin or Opioid Overdose Events, 2008-2013				
	Heroin Overdose (n=2068)		Prescription Opioid Overdose(n=3945)	
Characteristics	Before overdose %	After overdose %	Before overdose %	After overdose %
Any prescription opioid use	43.2	39.7	66.1	59.6
Prescription opioid duration > 90d	10.5	9.0	32.4	28.3
Any medication-assisted treatment	29.4	33.0	13.5	15.1
Buprenorphine	19.2	20.3	5.4	6.7
Methadone	10.4	12.6	8.2	8.3
Naltrexone	2.4	3.0	0.4	0.8

Source: Frazier, Winfred, et al., 2017

So, moving forward, we have clear evidence that we need to fund treatment and promote behavioral health parity so that people have access to this treatment. The Urban Institute recently published a study titled, “Rapid Growth in Medicaid Spending on Medications to Treat Opioid Use Disorders and Overdose,” which looked at the rapid growth in Medicaid spending on medications to treat opioid use disorder and prevent overdose (Clemans-Cope et al., 2017). The next graph depicts the medications used to treat opioid use disorder, and the money spent on these medications over the years. The spending is increasing and this is a good thing.

Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD

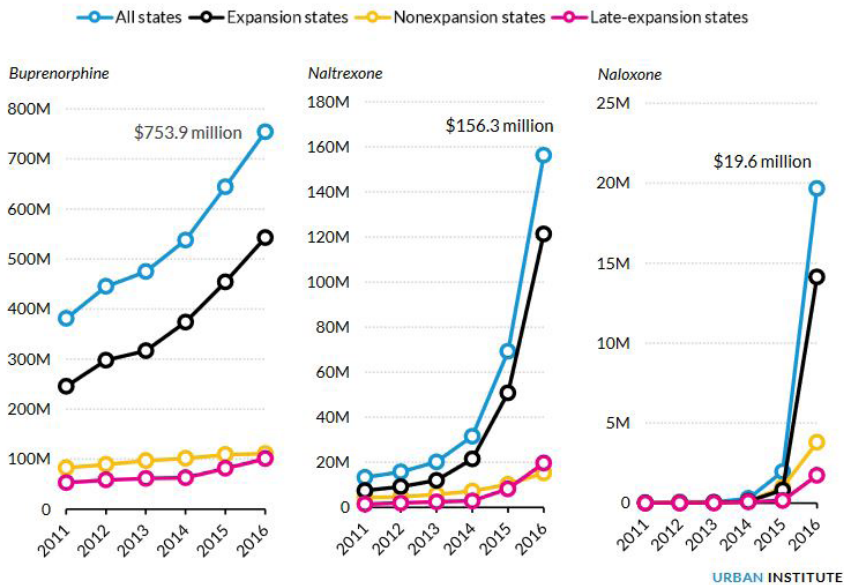


Source: Clemans-Cope et al., 2017

The following graph looks at Medicaid spending for states with and without Medicaid expansion. If you were in an expanded state, the money spent is increasing and people are accessing medications. Unfortunately, if you were in a non-expansion or a late expansion state, money was not being allocated for effective treatment. The bottom line is, we need to make sure that everyone who needs these medications for treatment has access to them.

Medicaid Spending on Buprenorphine, Naltrexone, and Naloxone Prescriptions for OUD, by State

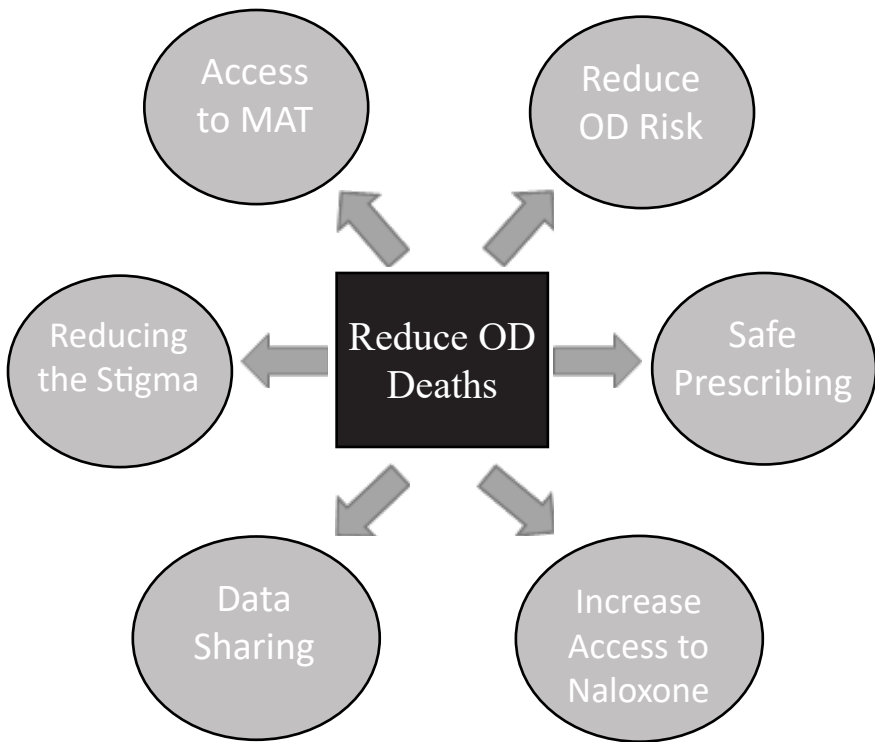
Millions of dollars



Source: Clemans-Cope et al., 2017

Connecticut Opioid Response (CORE)

The Connecticut Opioid Response (CORE) was created as part of Governor Dannel Malloy’s strategic initiative to reduce overdose deaths. A group of Yale University Professors led by Dr. David Fiellin, including myself, Dr. William Becker, and Dr. Robert Heimer partnered with many agencies and organizations within the state to develop this plan. Our goal to reduce deaths included six specific strategies, including increasing access to MAT, reducing OD risk, safe prescribing, increasing access to Naloxone, data sharing, and reducing stigma.



Reduce the Risk of Overdose

We needed to educate the medical community and the public regarding those at highest risk for overdose. This includes those with a prior non-fatal opioid overdose; leaving a controlled settings such as residential treatments, detoxification or incarceration who have lowered opioid tolerance; those prescribed doses of opioid analgesic greater than 90 milligram morphine equivalents (MME) per day; those who are co-prescribing or co-using opioids and benzodiazepines or injecting opioids; those with exposure to high potency opioids (fentanyl, W-18), low levels of physical tolerance (new initiates); and those with sleep disordered breathing such as obstructive sleep apnea.

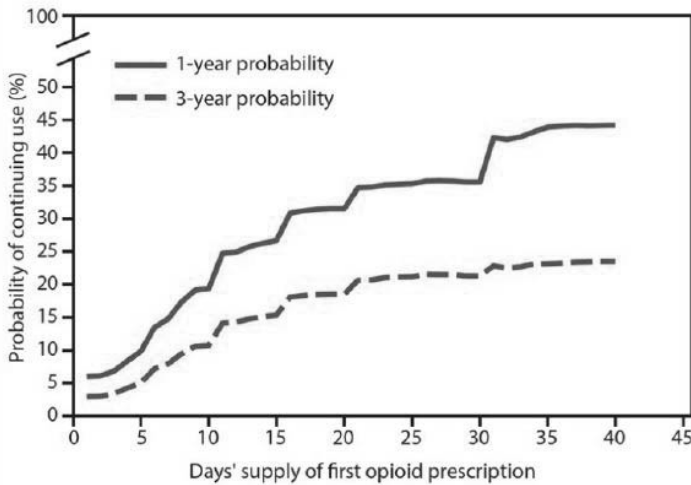
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Safe Prescribing

All states in the U.S., except for Missouri, have prescription monitoring programs (PMP). Most states require that a physician reviews the program if writing an opioid prescription for more than 72 hours to assess if other providers are prescribing opioids or other narcotics. This alone is not a panacea, as individuals who are buying illicit drugs are obviously not in the system. However, the PMP is associated with less deaths. There were an estimated 600 fewer overdoses nationwide in 2016 with the implementation of this program, so there is value to accessing the system (Patrick, Fry, et al., 2016).

The CDC also published guidelines for doctors who prescribe opioids. Two recent articles highlight the importance of prescribing short courses of opioids when necessary. A recent article in *Morbidity and Mortality Weekly* reported the characteristics of initial prescription episodes and the likelihood of long-term opioid use in a sample of patients (2006-2015) derived from the IMS Lifelink+ database (commercially insured population). The authors found that prescribing three days or less of opioids, often sufficient for most acute pain, was associated with a relatively low long-term rate of opioid use (6%). This rate of long-term use significantly increased to 13.5% for persons whose first episode of use was for > 8 days and to 29.9% when the first episode of use was for > 31 days (Dowell, Haegerich & Chou, 2016).

**One- And 3-Year Probabilities of Continued Opioid Use Among
Opioid-Naïve Patients,
By Number of Days' Supply* of the First Opioid Prescription —
United States, 2006–2015**



* Days' supply of the first prescription is expressed in days (1–40) in 1-day increments. If a patient had multiple prescriptions on the first day, the prescription with the longest days' supply was considered the first prescription.

Source: Shah, Hayes, et al., 2017

Another paper published in the *New England Journal* in 2017 investigated whether overuse of opioids may be driven in part by physician prescribing. Researchers performed a retrospective analysis involving Medicare patients who had an index ED visit from 2008–2011. Emergency physicians within a hospital were categorized as being high-intensity or low-intensity opioid prescribing according to quartiles of prescribing rates within the same hospital. They then compared rates of long-term opioid use (defined as 6 months of days supplied) in the 12 months post ED visited among patients treated by high-intensity or low-intensity prescribers. They found a wide variation in rates of opioid prescribing existed among MDs practicing in the same ED. Long-term opioid use at 12 months was

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significantly higher among patients treated by the high-intensity prescribers (adjusted odds ratio, 1.3; 95% CI 1.23 to 1.37; $p < 0.001$) (Barnett, Olenski, et al., 2017).

So, we have pretty good evidence that we need to prescribe less and more judiciously. We have to recognize that we may be part of the problem.

Increase Access to Naloxone (Narcan)

Naloxone is an opioid agonist and its use is a life-saving intervention. The medication can be administered intravenously, in a nasal spray (ADAPT), or is available in an atomizer form, which must be assembled and is more challenging in an emergency. We know that having naloxone available to individuals with an opioid use disorder and their family or community can be life- saving. Personally, I believe this should be available in any public place, for example in an automatic defibrillator, along with an EpiPen. We need them in airplanes, churches, coffee houses, any place that people gather.

There are Good Samaritan overdose immunity laws in many states. These laws protect a person if you are using with someone and that person overdoses. With these laws in place, you can call 911, administer naloxone, and you will have immunity from arrest if first responders or police find you with drug paraphernalia.

Data Sharing

Data sharing is essential if a community is to have timely information regarding surveillance of use, overdose, treatment availability, etc. States such as Massachusetts and Maryland (Baltimore) have assembled comprehensive strategic plans, and they have shared data with insights. However, it continues to be a challenge within and among states. In Connecticut, Governor Malloy signed into law a legislation package that said we could data share between state agencies regarding opioid misuse and opioid overdose deaths.

This law allows us to obtain data so we can map out hot spots of overdose and use, and determine whether these individuals were or are currently in treatment, have visited an ED, etc.

Reduce the Stigma

Another major initiative that the CORE team is focused on is reducing the stigma of having an opioid disorder, which brings us back to where we started, that words have power. This is something that we just need to keep talking about. We hosted a media roundtable at Yale University and we talked about laypeople's views and increasing community understanding of opioid use disorder and treatment. We want to let people know that language is powerful, especially when talking about substance use disorders. So, we'd like you to avoid certain terms and replace them with other language instead. Stigma may place an unnecessary barrier between need and treatment and we are working hard to reduce its impact.

When Discussing Addictions...

Avoid These Terms:	Use These Instead:
Addict, user, drug abuser, junkie	Person/Patient with opioid use disorder or opioid addiction
Addicted baby	Baby born with neonatal abstinence syndrome
Opioid abuse or opioid dependence	Opioid use disorder
Problem	Disease
Habit	Drug addiction
Clean or dirty urine test	Negative or positive urine drug test
Opioid substitution or replacement therapy	Opioid agonist treatment Medication for Addiction Treatment
Relapse	Return to use/ Setback
Treatment failure	Treatment attempt
Being clean	Being in remission or recovery

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Language is important, so we should be saying “a person with an addiction” or “a person with an opiate use disorder” instead of “an addict” or “a junkie.” Instead of “opiate abuse” or “opiate dependence,” we’d like to talk more about “opioid use disorder.” We avoid the term “opioid substitution” or “replacement therapy,” because it is not substituting one drug for another. It’s a medication, whether it’s buprenorphine or methadone, and it is given in prescribed doses under a doctor’s supervision. Using this language can be hard, even for me, but it is essential if we are going to change the climate and avoid contributing to the stigma that surrounds this disease.

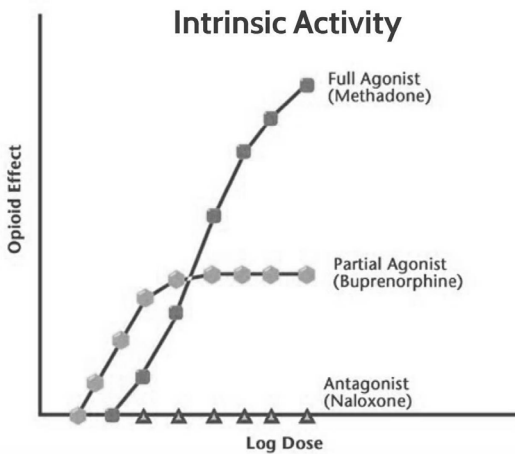
What are Solutions to the Opioid Epidemic?

One thing we know about this epidemic is that arrests and use of the judicial system does not work. We’ve already tried this and our jails are full of individuals with substance use disorders. The war on drugs only led to more and more people being incarcerated. The Court Appointed Special Advocates (CASA) reported data last year that 85% of the U.S. prison population either has an addiction or their lives were affected by substance use.

Get People into Treatment

Despite how prevalent opioid addiction is, only one in five people get treatment. That is abhorrent. So, what are some things that I can do as an emergency physician? I can work on increasing access to treatment. Why the emergency department? We are the front door of the hospital, and we are where the patients are. A famous bank robber was once asked, “Why do you rob banks?” and his answer was, “I rob banks because that’s where the money is.” The emergency department is where many receive their care, so why not use the ED visit as an opportunity to help? Sometimes people come in seeking treatment directly, or we see them for complications of injection use, such as skin infections, or they present with an overdose, or we identify their disease through screening. In any

case, we have the opportunity to intervene and engage them in treatment.



Source: *The National Alliance of Advocates for Buprenorphine Treatment*

So, my colleagues and I had this great idea. What if we could initiate treatment while these patients were in the ED? Many of these are young patients without other chronic diseases and primary care physicians. We thought, maybe we could initiate opioid agonist treatment with buprenorphine and help make this direct linkage to ongoing maintenance therapy. We shifted the

paradigm and started treating opioid disorder like any other disease or emergency in the case of overdose - and we could do that with buprenorphine, a medication that physicians have been capable of using since 2002.

Buprenorphine is a partial agonist, which means it has a ceiling effect, and after a certain dose its effect levels off. It has a very high affinity to the receptors in the brain. Unlike buprenorphine, methadone is a pure agonist. The effect continues as the dose rises and it can therefore be lethal. Naloxone is an antagonist, not to be confused with naltrexone, which you may hear about regarding treatment. Naloxone is not treatment, but the antidote to overdose, precipitating withdrawal. So, buprenorphine is an ideal medication to initiate in the ED. It is often combined with naloxone to prevent diversion. When taken sublingually it is absorbed and effective.

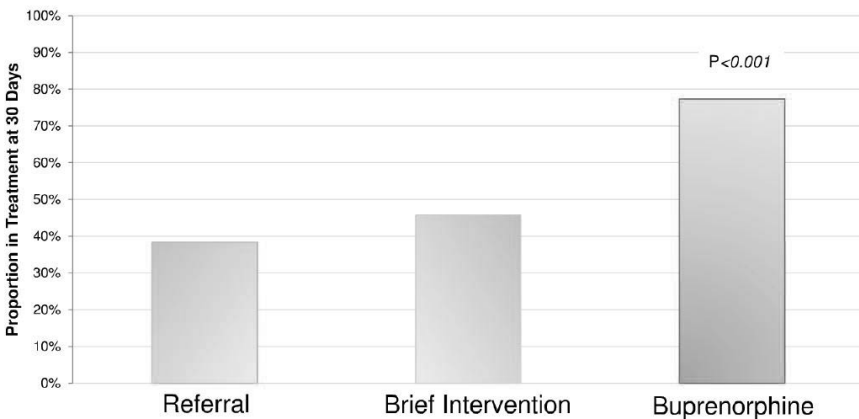
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Unfortunately, in order to prescribe buprenorphine (often known as Suboxone) a physician must obtain an X waiver from the Drug Enforcement Administration (DEA). This process includes four hours of online training and an additional four hours of in person training, and this is often a barrier for physician prescribing. You may find this very ironic since any physician can prescribe thousands of opioid pills such as OxyContin and oxycodone, but we need an eight hour course to treat opioid use disorders. Fortunately, there is a 72-hour rule [Title 21, Code of Federal Regulations, Part 1306.07(b)] that allows physicians to administer (but not prescribe) narcotic drugs for the purpose of relieving acute withdrawal symptoms, while arranging for the patient's referral for treatment. According to this rule, no more than one day of medication may be administered or given to a patient at one time. The patient must return to the ED each day, for no more than 72 hours, and this period cannot be renewed or extended. This can work well, but one limitation is that the emergency physician has arranged someplace to send the patient for ongoing care.

My colleagues and I conducted a study to compare the efficacy of three intervention methods for opioid dependent ED patients. 329 patients were enrolled in this study from April 2009-June 2013. Our question was "How should we treat them?" One intervention was just referring them. These referrals were more than your typical referral – a list of local providers and programs were provided based on the patient's insurance and preference. The second arm involved a brief psychosocial intervention, namely the Brief Negotiation Interview or BNI, where our goal was to motivate them to accept treatment. The brief intervention was followed by a facilitated referral. We contacted the program, arranged transportation if necessary, and in some cases even received clearance through insurance companies to get people into treatment. The third arm of this study, included the BNI plus ED-initiated buprenorphine, either administered in the ED or given as a take home dose if the

patient was not in sufficient withdrawal to initiate treatment at the time of the ED visit. A sufficient supply was given to take home for at most 72 hours when they received an appointment for follow up in our primary care center, where treatment was continued for 10 weeks. Our primary outcome was treatment engagement at 30 days. We found that almost 80% in the ED-initiated buprenorphine group were in a formal treatment program at 30 days compared with brief intervention or referral (see below).

Engaged in Treatment at 30-Days



Source: D'Onofrio, O'Connor, et al., 2015

We also found that in our buprenorphine group, there were few with inpatient treatment compared to the others, which is of course very cost-effective.

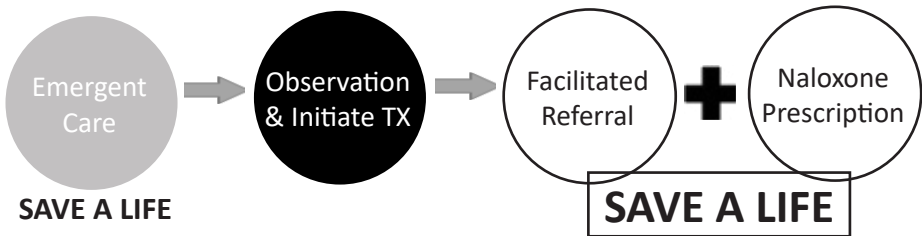
We also performed a cost-effective analysis (Busch, 2017) and found out that willingness to pay for every dollar, whether it was for treatment engagement or whether it was for one day free of opiates, for every dollar, buprenorphine proved to be more cost effective. Thus, our mantra that “we need more chairs, not beds” for the treatment of opioid use disorder. You really don’t need

inpatient stays for this. You need the medication. We concluded that with ED-initiated buprenorphine treatment and follow-up in our primary care, we improved engagement in treatment; decreased people's illicit use; and reduced inpatient services; all while being cost-effective.

How Do We Apply this to the Real World and Move Forward? (Sharfstein, 2017)

Here is an example of a real patient that was pulled out of a vehicle unresponsive. Her oxygen was very low. She was given naloxone and after she woke up she said she had just switched over from prescription drugs to IV heroin. Why should this case be treated differently than other emergencies? We resuscitate people all the time, and we do it in a very specific way. Patients who are about to die receive urgent propriety in ED care, for example, patients who have had a stroke or myocardial infarctions (MI). For MI and stroke, we know we have a certain amount of time to get them to definitive treatment, and we have created specific quality measures, such as time from door to EKG, EKG to the catherization laboratory, and time to opening the culprit lesion. In stroke, we have door to needle (medication administration) time. We don't hand out a pamphlet and say, "You're having a big heart attack, but it's Friday, so I'm going to give you this pamphlet and you can go out and find a cardiologist and laboratory to open up that coronary artery for you. But with your insurance I don't think you're going to find somebody over the weekend. See you later, and good luck." In the past, that's exactly what we have done for patients who present with an overdose or signs and symptoms of opioid use disorder that we know are at high risk for overdose. They came in, they may have even been dead at the time, we revived them, we observed them for a while, and we get them out of the ED in a couple hours. What we're trying to present as best practice now, is to observe these patients and start treatment when appropriate. Let's start to engage them in this conversation. Even if they didn't come in for an

overdose, but we know they're going to die from a variety of other issues, let's still try to engage them and give them a facilitated referral. Then, let's engage them in harm reduction strategies such as overdose education and naloxone distribution. If we did all of this, we could really save lives. We now have several emergency physicians leading this charge throughout the country, not only in Connecticut. We have Dr. Sullivan, who has started his own clinic in Syracuse, New York, Dr. Herring in Oakland, California, and two ED physicians in Camden, New Jersey working at Cooper Hospital. These are the real heroes. They saw a problem and stepped up to the plate, against all odds, to do something about it.



Conclusion

The opioid crisis is escalating. Lives are being wasted every day. We have the opportunity to change this, adapting evidence based therapies and developing state wide strategies that focus on increasing access to MAT, identifying high risk individuals, safe prescribing, offering harm reduction strategies, sharing data and decreasing stigma. Most of all, we hope to change three keys about addiction: the way we think about it, the way we talk about it, and the way we treat people that have an addiction.

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